į	, e	525 Rec	Attorney's Docket Number
	- 1717 7 NT	SMITTAL LETTER TO THE UNITED STATES	05725.0807
		SMITTAL LETTER TO THE ONTIED STATES SIGNATED/ELECTED OFFICE (DO/EO/US)	U.S. Application No.4
	CONC	ERNING A FILING UNDER 35 U.S.C. 371	097719101
Inte		nal Application. No. International Filing Date	Priority Date Claimed
	FR99/0		June 11, 1998
,			
ritle	e of I	nvention: Cosmetic Composition Comprising at Least a	Tacky Polymer and at Least
a Fi	xing P	olymer	
Appl:	icants	For DO/EO/US: Isabelle ROLLAT-CORVOL; Henri SAMAIN	
	*		/Elogted Office (DO/EO/IIS)
	Appli	cant herewith submits to the United States Designated	/ Alected Office (DO) Ho, ob)
the	follow	ring items and other information:	
_	F==3	This is a FIRST submission of items concerning a fil	ling under 35 U.S.C. 371.
1.	[X]	This is a SECOND or SUBSEQUENT submission of items of	concerning a filing under
2.	[]	35 U.S.C. 371.	3
3.	[]	This express request to begin national examination pro	ocedures (35 U.S.C. 371(f))
3.	FI	at any time rather than delay examination until the ex	xpiration of the applicable
1		time limit set in 35 U.S.C. 371(b) and PCT Articles	22 and 39(1).
4.	[x]	A proper Demand for International Preliminary Examin	nation was made by the 19th
- '		month from the earliest claimed priority date.	
5.	[X]	A copy of the International Application as filed (3!	5 U.S.C. 371(c)(2))
		a. [] is transmitted herewith (required only if	not transmitted by the
, mag		International Bureau).	_
": zzi ": zii		b. [X] has been transmitted by the International	Bureau.
745 5.45		c. [] is not required, as the application was f	iled in the officed states
. =		Receiving Office (RO/US). A translation of the International Application into	English (35 H S C 371(c)(2)).
in tank he tank he tank tank tank tank	[X]	A translation of the international Application into a Amendments to the claims of the International Application	cation under PCT Article 19
13	[X]	(35 U.S.C. 371(c)(3)).	
j.4.		a. [] are transmitted herewith (required only i	f not transmitted by the
		International Bureau).	
:: 1		b. [] have been transmitted by the Internationa	l Bureau.
		c. [] have not been made; however, the time lim	it for making such
#: 1. E		amendments has NOT expired.	
in in		d. [X] have not been made and will not be made.	
8	[]	A translation of the amendments to the claims under	PCT Article 19
The Wast Com.		(35 U.S.C. 371(c)(3)).	271 (~) (4))
9.	[]	An oath or declaration of the inventor(s) (35 U.S.C	. 3/1(C)(4)).
10.	[]	A translation of the annexes to the International P	retruituary examinacton keporc
		under PCT Article 36 (35 U.S.C. 371(c)(5)).	

Items 11. to 16. below concern other document(s) or information included:

- 11. [X] An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
- 12. [] An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
- 13. [] A FIRST preliminary amendment.
 - [] A SECOND or SUBSEQUENT preliminary amendment.
- 14. [] A substitute specification.
- 15. [] A change of power of attorney and/or address letter.
- 16. [X] Other items or information:
 - a. [X] Copy of Cover Sheet of International Publication No. WO99/63955.
 - b. [] Copy of Notification of Missing Requirements.

1		INTERN	ATT	ATTON NO	ATTORNEY	DOCKET NUMBER
U.S. APPLICATION	on No. / 71910	DOT /FD	99/01347	ATTON NO.	05725.08	
	<u>U// </u>	CI/II	.55/ 01517			
17. [X] The	following fees are	e submit	ted:			CALCULATIONS
	ic National Fee (3			:		'
	port has been prep				860.00	İ
Internation	onal preliminary e	xaminati	on fee paid to	·		
	37 CFR 1.482)				690.00	İ
No intern	ational preliminar	v examin	ation fee paid	to		j
	37 CFR 1.482) but					
	USPTO (37 CFR 1.4				760.00	
Neither i	nternational preli	minary e	examination fee			
	1.482) nor intern					
(37 CFR	1.445(a)(2)) paid	to USP7			1,000.00	
Internati	onal preliminary e	xaminati	on fee paid to	USPTO		
(37 CFR	1.482) and all cl	aims sat	isfied provision	ons		
of PCT	Article 33(1)-(4).				100.00	1+050 00
			APPROPRIATE BAS			\$860.00
Surcharge of \$	130.00 for furnish	ing the	oath or declar	ation late	er than	
	30 months from the	e earlies	st claimed prio	rity date		 d
(37 CFR 1.492(e)).				Data	\$
Claims		.ed	Number Extr.	a	Rate X \$18.00	\$306.00
Total Claims	37-20=		17		X \$80.00	
	aims 1 - 3=	11	0		+\$270.00	
Multiple depen	dent claim(s) (if	appiicai	rotal of above	CAT.CIII.ATT	,	
	./2 for filing by s					
Reduction by 1	./Z TOT TITING DY B	MIGHT CIT	czc,, al appli		_	\$
				SUBTO:	ral =	\$1166.00
Processing fee	of \$130.00 for fu	rnishin	g the English t	ranslation	n later	
than [] 20	[] 30 months	from the	e earliest clai	med prior:	ity date	\$
(37 CFR 1.492)					+	
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2			TOTAL	NATIONAL 1	FEE =	\$1166.00
Fee for record	ling the enclosed a	assignme	nt (37 CFR 1.21	(h)). The	е	
assignment mus	st be accompanied b	oy an ap	propriate cover	sheet		
(37 CFR 3.28,	3.31).			per prop		\$
<u>iii</u>			TOTAL	FEES ENCL		\$1166.00
1.11				Am	ount to be	•
The same					refunded	
F			11CC 00 ha aa		charged	
	A check in the amou	int of §	TI66.00 to co	ver the a	the amount	
	Please charge my De	eposit A	ecount no		che amount	. 01
\$	co cover the above	food	7 dunlicate cor	ov of this	sheet is	enclosed.
ָּרָער בי רער	The Commissioner is	tees.	authorized to	charge an	v addition	nal fees
c. [X] :	which may be requi	red or	credit any over	cpavment t	o Deposit	Account
۷ ۳	No. 06-0916. A du	nlicate	copy of this sh	neet is en	closed.	
1	40. 00 0510. A daj	2110400			•	
The Commiss	sioner is hereby au	thorized	d to charge any	other fees	due under	c 37 C.F.R. §1.3
or §1.17 duri	ng the pendency of	this ap	plication to ou	ır Deposit	Account 1	No. 06-0916.
		-		/ .	1/	

SEND ALL CORRESPONDENCE TO: Finnegan, Henderson, Farabow Garrett & Dunner, L.L.P. 1300 I Street, N.W. Washington, D.C. 20005-3315 TLI/EFC/FPD/peg

Ernest F. Chapman Reg. No. 25,961

Submitted: December 8, 2000

PCT/FR99/01347

1

COSMETIC COMPOSITION COMPRISING AT LEAST ONE TACKY POLYMER
AND AT LEAST ONE FIXING POLYMER

The subject of the invention is a cosmetic

5 composition for keratinous fibres such as the hair comprising, in a cosmetically acceptable medium, at least one tacky polymer having a glass transition temperature of less than 20°C and at least one fixing polymer having a glass transition temperature greater than 15°C. It also relates to a method of treating keratinous fibres such as hair, in particular a method of fixing and/or maintaining hairstyle, using the said composition as well as the use of this composition in or for making a cosmetic hairstyling formulation.

For the purposes of the present invention, the expression "keratinous fibres" is understood to mean the hair, the eyelashes and the eyebrows and the expression "tacky polymer" a polymer which, after application by pressing onto an identical polymer, resists an attempt at separation.

The fixing of the hairstyle is an important component of hairstyling which consists in maintaining the shape already made or in shaping the hair and in fixing it simultaneously. The expression "fixing polymer" is understood to mean a polymer which maintains the shape of

25

the hair or which makes it possible to shape the hair and to fix it simultaneously.

The hair products for shaping and/or maintaining the hairstyle which are most common on the cosmetics

5 market are compositions to be sprayed, essentially consisting of a solution, most often an alcohol or aqueous solution, and one or more materials, generally polymeric resins, whose function is to form bonds between the hair, also called fixing materials, in the form of a mixture

10 with various cosmetic adjuvants. This solution is generally packaged either in an appropriate aerosol container pressurized with the aid of a propellant, or in a pump dispenser.

Hairstyling gels or foams are also known which
are generally applied to wet hair before blow-drying or
hair setting. Unlike conventional aerosol lacquers, these
compositions have the disadvantage of not allowing the
fixing of hair in a shape which already exists. Indeed,
these compositions are essentially aqueous and their
application wets the hair and cannot therefore maintain
the initial shape of the hairstyle. To shape and fix the
hairstyle, it is therefore necessary to then carry out
blow-drying or drying.

Most of the compositions of the state of the art

25 have the same disadvantage of not fixing or maintaining

the hairstyle for a sufficiently long period. Thus, the shape initially given to the hairstyle gradually disappears during the day, this in fact happening more quickly if the person is moving about. Consequently, it is often necessary to repeat all the hairstyling and fixing operations if it is desired to recover the initial hairstyle.

Hairstyling compositions are therefore being sought which offer a sufficiently strong fixing and maintaining effect for the hairstyle to suitably withstand the various stresses over time.

Finally, the compositions intended for fixing the hairstyle sometimes have the disadvantage of impairing the cosmetic properties of the hair. Thus, the hair may become rough, difficult to disentangle, lose its pleasant feel and appearance. Hairstyling compositions are therefore being sought which offer good cosmetic properties, in particular in terms of disentanglement, softness and feel.

A need therefore exists to find cosmetic compositions, in particular for hairstyling, which do not have the set of disadvantages indicated above.

Surprisingly and unexpectedly, the Applicant has discovered that when tacky polymers, in particular branched sulphonic polyesters or (meth)acrylic ester

polymers, are combined with certain fixing polymers, it is possible to obtain cosmetic compositions which meet the requirements expressed above.

The subject of the invention is therefore a

5 cosmetic composition for keratinous fibres such as the
hair comprising, in a cosmetically acceptable medium, at
least one tacky polymer having a glass transition
temperature (Tg) of less than 20°C and at least one fixing
polymer having a glass transition temperature (Tg) greater

10 than 15°C.

Advantageously, a tacky polymer is chosen which has a peeling profile defined by at least one maximum peeling force $F_{\text{max}} > 3$ Newton, and preferably greater than 5 N.

More advantageously still, the peeling profile is defined, in addition, by an energy for separation $E_{s\,(M/V)}$ of the material brought into contact with a glass surface of less than 300 μJ , when the glass transition temperature of the tacky polymer is less than -15°C.

The maximum peeling force F_{max} is the maximum tensile force, measured with the aid of an extensometer, necessary to peel apart the respective 38 mm² surfaces of two rigid, inert and nonabsorbent supports (A) and (B) placed opposite each other; the said surfaces being previously coated with the tacky polymer previously

dissolved at 5% in an aqueous, aqueous-alcoholic or alcoholic solvent, at the rate of 1 mg/mm², dried for 24 hours at 22°C under a relative humidity of 50%, then subjected for 20 seconds to a compression of 3 Newton and finally subjected for 30 seconds to pulling at the rate of 20 mm/min.

Advantageously, supports (A) and (B) consisting of polyethylene, polypropylene, metal alloy or glass are used.

The separation energy $E_{s(M/V)}$ is the energy provided by the extensometer in order to carry out the separation of the respective 38 mm² surfaces of two rigid, inert and nonabsorbent supports (C) and (D) placed opposite each other; one of the said supports consisting 15 of cut glass and the other of the said supports being of an identical nature to the supports (A) and (B) as defined in Claim 4 or 5 and whose surface is previously coated with the tacky polymer previously dissolved at 5% in an aqueous, aqueous-alcoholic or alcoholic solvent, at the 20 rate of 1 mg/mm², dried for 24 hours at 22°C under a relative humidity of 50%, the two surfaces of the said supports (C) and (D) being subjected for 20 seconds to a compression of 3 Newton and finally subjected for 30 seconds to pulling at the rate of 20 mm/min.

The separation energy $E_{s\,(M/V)}$ is work which can be calculated by means of the following formula:

F(x)dx

Xs1+0.05

where F(x) is the force necessary to produce a

5 movement(x);

 \mathbf{x}_{sl} is the movement (expressed in millimetres) produced by the maximum tensile force;

 x_{s2} is the movement (expressed in millimetres) produced by the tensile force which allows the complete separation of the two surfaces of the supports (C) and (D).

Preferably, a tacky polymer will be chosen such that the maximum peeling force $_{Fmax}$ is greater than 5 Newton and/or such that its glass transition temperature (Tg) is less than 20°C. If the Tg of the polymer is less than -15°C, it will preferably need to have in addition a separation energy $E_{s(M/V)}$ of less than 300 μJ .

The relative concentration by weight of tacky polymer in the composition is in general greater than 0.01%, more preferably greater than 0.1%, and more preferably still greater than 0.5%.

According to a first advantageous embodiment of the present invention, a branched sulphonic polymer or (meth)acrylic ester polymers are chosen as tacky polymer.

Advantageously, a fixing polymer is chosen which 25 has a glass transition temperature (Tg) greater than 25°C.

In accordance with the invention, the relative concentration by weight of fixing polymer in the composition is in general greater than 0.01%, and preferably greater than 0.1%.

A particularly preferred form of the branched sulphonic polyester is that obtained by polymerization of:

- (i) at least one difunctional dicarboxylic acid not carrying a sulphonic function;
- (ii) at least one difunctional monomer carrying at

 least one sulphonic function, the functional group(s)
 being chosen from the group comprising hydroxyl,
 carboxyl and amino groups;
 - (iii) at least one diol or a mixture of diol(s) and
 of diamine(s);
- (iv) optionally one difunctional monomer chosen from the group comprising hydroxycarboxylic acids, aminocarboxylic acids and mixtures thereof;
 - (v) at least one multifunctional reagent carrying at least three functional groups chosen from the group comprising amino, alcohol and carboxylic acid groups.

Such a polymerization may be carried out starting with:

(i) at least one difunctional dicarboxylic acid not carrying a sulphonic function;

- (ii) 2 to 15 relative mol% of difunctional monomer carrying at least one sulphonic function;(iii) at least one diol or a mixture of diol(s) and of diamine(s);
- (iv) 0 to 40 relative mol% of the difunctional monomer chosen from the group comprising the hydroxycarboxylic acids, the aminocarboxylic acids and mixtures thereof;
- (v) 0.1 to 40 relative mol% of the multifunctional
 reagent carrying at least three reactive functional
 groups.

The branched sulphonic polymers preferably contain substantially equal proportions, as number of equivalents, of carboxylic acid functions, on the one hand, and of diol and/or diol and diamine functions, on the other hand.

The difunctional dicarboxylic acid (i) is preferably chosen from the group comprising aliphatic dicarboxylic acids, alicyclic dicarboxylic acids, aromatic dicarboxylic acids or a mixture thereof and more particularly from the group comprising 1,4-cyclohexanedioic acid, succinic acid, glutaric acid, adipic acid, azelaic acid, sebacic acid, fumaric acid, maleic acid, 1,3-cyclohexanedioic acid, phthalic acid,

terephthalic acid and isophthalic acid or mixtures thereof.

The difunctional monomer (ii) as defined above is preferably chosen from the group comprising

5 dicarboxylic acids, dicarboxylic acid esters, glycols and hydroxy acids each containing at least one metal sulphonate group.

The diol (iii) is preferably chosen from the group comprising alkanediols and polyalkylenediols and nore particularly from the group comprising ethylene glycol, propylene glycol, diethylene glycol, triethylene glycol and polypropylene glycol.

The diamine (iii) may be chosen from the group comprising alkanediamines and polyalkylenediamines.

The multifunctional reagent (v) is preferably chosen from the group comprising trimethylolethane, trimethylolpropane, glycerol, pentaerythritol, sorbitol, trimellitic anhydride, erythritol, threitol, dipentaerythritol, pyromellitic dianhydride and dimethylpropionic acid.

The branched sulphonic polymers more particularly desired by the present invention are those described in patent applications WO 95/18191, WO 97/08261 and WO 97/20899.

In accordance with the invention, there is advantageously chosen, as branched sulphonic polymer, the polymer AQ 1350 marketed by the company Eastman. This polymer AQ 1350 is defined by:

- a glass transition temperature, given by the supplier, equal to 0°C;
 - a maximum peeling force F_{max} equal to 25 N.

According to a second advantageous embodiment of the compositions in accordance with the invention, a (meth)acrylic ester polymer is used as tacky polymer.

The tacky (meth)acrylic ester polymers used in accordance with the invention advantageously comprise:

- (a) from 9 to 99% by weight of a (meth)acrylic ester monomer relative to the total weight of the polymer;
- 15 (b) up to 90% of comonomer(s);
 - (c) from 1 to 10% of a vinylidene monomer containing a carboxyl or hydroxyl group.

The (meth)acrylic ester monomer (a) generally corresponds to the formula (I) or (II):

$$CH_2=CH-COOR$$
 (I)

$$CH_2=C(CH_3)-COOR$$
 (II)

in which R represents a C_1 to C_{18} alkyl, an alkoxy(C_2 to C_8 alkyl), an alkylthio(C_2 to C_8 alkyl) or a C_2 to C_8 cyanoalkyl. By way of example, the monomer (a) may be chosen from the group comprising methyl acrylate, ethyl

acrylate, n-butyl acrylate, isobutyl acrylate, hexyl acrylate, octyl acrylate, 2-ethylhexyl acrylate, decyl acrylate, methoxyacrylate, ethoxyacrylate, methylthiomethyl acrylate and cyanopropyl acrylate.

The comonomer (b) may contain one or more vinylidene groups having terminal $CH_2=C$ groups, such as:

- acrylic or methacrylic esters, such as methyl
 methacrylate, ethyl methacrylate, n-butyl
 methacrylate, methyl ethacrylate,
- 10 vinyl halides such as vinyl chloride;
 - vinyl and allyl esters such as vinyl acetate, vinyl butyrate, vinyl chloroacetate;
 - aromatic vinyls such as styrene, vinyltoluene, chloromethylstyrene, vinylnaphthalene; and
- vinyl nitriles such as acrylonitrile or methacrylonitrile.

Among the vinylidene monomers containing
hydroxyl groups (c), there may be mentioned acrylate
monomers containing a terminal hydroxyl group, such as

20 hydroxyethyl acrylate, hydroxyethyl methacrylate,
hydroxypropyl acrylate, hydroxyethyl methacrylate,
hydroxybutyl acrylate or alternatively certain
hydroxymethylated derivatives of diacetone acrylamide, for
example N-methylolacrylamide, N-methylolmaleamide,

N-propanolacrylamide, N-methylolmethacrylamide, N-methylol-p-vinylbenzamide.

Among the vinylidene monomers containing carboxyl groups (c), there may be mentioned for example acrylic or methacrylic acid, itaconic acid, citraconic acid, maleic acid.

The tacky (meth)acrylic ester polymers particularly desired by the present invention are those described in patents US 5 234 627 and US 4 007 147.

- In accordance with the invention, the polymer Hycar 26 120 marketed by the company Goodrich is advantageously chosen as (meth)acrylic ester polymers.

 This polymer Hycar 26 120 is defined by:
 - a glass transition temperature, given by the supplier, equal to -10°C ;
 - a maximum peeling force F_{max} equal to 6.25 N.

The fixing polymer is generally chosen from anionic, cationic, amphoteric and nonionic fixing polymers and mixtures thereof.

These fixing polymers may be used in solubilized form or alternatively in the form of a dispersion of solid particles of polymer.

As cationic fixing polymer, there is preferably chosen the polymers comprising primary, secondary,

25 tertiary and/or quaternary amine groups which are part of

the polymer chain or which are directly attached to it, and having a molecular weight of between 500 and about 5,000,000 and preferably between 1000 and 3,000,000.

As anionic fixing polymers, there are preferred the polymers comprising groups derived from a carboxylic, sulphonic or phosphoric acid and which have a weight-average molecular weight of between about 500 and 5,000,000.

As amphoteric fixing polymers, there are 10 preferably chosen the polymers comprising B and C units randomly distributed in the polymer chain, where B denotes a unit derived from a monomer comprising at least one basic function, in particular a basic nitrogen atom and C denotes a unit derived from an acidic monomer comprising 15 one or more carboxylic or sulphonic groups or alternatively B and C may denote groups derived from zwitterionic monomers of carboxybetaines or sulphobetaines; B and C may also denote a cationic polymer chain comprising primary, secondary, tertiary or quaternary amine groups, in which at least one of the 20 amine groups carries a carboxylic or sulphonic group attached via a hydrocarbon radical; or alternatively B and. C are part of a chain of a polymer containing an ethylene- α, β -dicarboxylic unit of which one of the carboxylic

groups has been caused to react with a polyamine comprising one or more primary or secondary amine groups.

As nonionic fixing polymers, polyurethanes are advantageously chosen.

Among the fixing polymers used in solubilized form, the polymers chosen from the group comprising silicone-containing acrylic polymers, polymers based on a vinylpyrrolidone and vinylcaprolactam monomer will be preferably used.

Among the fixing polymers which exist in the form of a dispersion, those comprising acrylic or methacrylic monomers and esters thereof or alternatively those comprising styrene monomers will be preferably used.

The composition may be provided in vaporizable,

15 foam, gel or lotion form and the cosmetically acceptable

vehicle may consist of an appropriate solvent to which

additives such as gelling agents or foaming agents are

added. In general, the solvent is chosen from water,

alcohols or an aqueous-alcoholic mixture.

The compositions may contain, in addition, an appropriate quantity of propellants such as customary compressed or liquefied gases, preferably compressed air, carbon dioxide or nitrogen, or alternatively a gas which is soluble or otherwise in the composition, such as

dimethyl ether, hydrocarbons which are fluorinated or otherwise and mixtures thereof.

The subject of the invention is also an aerosol device consisting of a container containing an aerosol composition consisting, on the one hand, of a liquid phase (or juice) containing at least one composition in accordance with the invention in an appropriate solvent and a propellant as well as a means of distributing the said aerosol composition.

Yet another subject of the invention is a method of treating keratinous fibres, in particular hair, characterized in that the composition in accordance with the invention is applied to the said fibres before or after shaping the hairstyle.

The composition in accordance with the invention is generally used in or for making a cosmetic hairstyling formulation.

The examples below make it possible to illustrate the invention without however seeking to limit the scope thereof. The polymers indicated below will be used:

Amphomer

Octylacrylamide/acrylate/butylaminoethyl/methacrylate copolymer marketed by National Starch Polymer LO-21 DRY Polydimethyl/methyl siloxane
containing methyl 3-propylthioacrylate/methyl methacrylate/
methacrylic acid groups marketed
by 3M

1

Luviskol VA64P Polyvinylpyrrolidone marketed by
BASF

Uramul SC 132 Acrylic copolymer latex marketed by DMS RESINS; Tg = 50°C

AQ 1350 Branched sulphonic polyester

marketed by the company Eastman

EXAMPLES:

Compositions in accordance with the invention comprising a combination of a branched sulphonic polymer and a fixing polymer are compared below with compositions in accordance with the prior art containing either the branched sulphonic polymer alone, or the fixing polymer alone.

Example 1 (comparative):

Sensory tests are carried out in order to compare the performance of compositions in accordance with the invention and of compositions in accordance with the prior art. The comparison is made on the retention of the hairstyle over time and under a constraint.

For that, 3 compositions in accordance with the invention and 4 compositions in accordance with the prior art are made. These compositions are applied to wigs of natural hair. Next, the shape retention of the wig and the return of the shape of the wigs after shaking are evaluated.

Composition 1 (invention):

AQ 1350			4 g
Amphomer	•		2 g
Water			75 g
2-Amino-2-meth	nyl-1-propanol qs		0.37 g
neutralization	n Amphomer		
Alcohol	qs	,	100 g

Composition 2 (invention):

AQ 1350					4	g
Polymer	LO-21	DRY	previously	90%	2	q

neutralized

Water 75 g

Alcohol qs 100 g

Composition 3 (invention):

AQ 1350 4 g

LUVISKOL VA 64 P 2 g

Water 75 g

Alcohol qs 100 g

Composition 4 (prior art - branched sulphonic polyester

alone):

AQ 1350 6 g

Water 75 g

Alcohol qs 100 g

Composition 5 (prior art - fixing polymer alone):

Amphomer 6 g

Water 75 g

2-Amino-2-methyl-1-propanol qs 1.09 g

neutralization Amphomer

Alcohol qs 100 g

Composition 6 (prior art - fixing polymer alone):

Polymer LO-21 DRY previously 90% 6 g

neutralized

Water 75 g

Alcohol qs 100 g

Composition 7 (prior art - fixing polymer alone):

LUVISKOL VA 64 P 6 g

Water 75 g

Alcohol qs 100 g

Each of the compositions is introduced into a pump dispenser. 3 grams of each composition are sprayed onto a wig of hair 20 cm long previously shampooed and drained. It is allowed to dry for 4 hours and the wig is turned over.

The wig is shaken by means of an alternating rotation for 2 hours. The final shape of the locks is compared with the shape which they had before shaking and

the shape retention is estimated. A score from 0 to 5 is used:

- 0 indicates a very poor shape retention and a completely collapsed hairstyle,
- 5 5 indicates an excellent retention and a hairstyle which has remained intact and voluminous in spite of the shaking.

The wigs are then disentangled and they are again shaken for 20 seconds. The return of the shape of the hairstyle when it has been subjected to all these operations is estimated. The same score scale ranging from 0 to 5 is used.

Table 1 summarizes the results.

Table 1

Table 1	
Shape retention	Return of the
after shaking	shape after
	shaking and
	disentanglement
3.25	2.5
4.0	4.0
4.5	4.25
2.0	4.0
3.75	0.75
3.5	1.0
2.0	0.75
	3.25 4.0 4.5 2.0 3.75 3.5

without	treatment	0	0.5	

Table 1 shows that the compositions in accordance with the invention and comprising the combination of polymers offer better results in terms of shape retention after shaking and of a return of the shape after shaking and disentanglement than the compositions in accordance with the prior art.

10

Example 2:

A composition 8 in accordance with the invention is prepared and the retention of the hairstyle as well as certain cosmetic properties are estimated.

15

Composition 8 (invention):

AQ 1350			4 g
URAMUL SC	132	*	0.5 g
Water	as		100 g

A wig of 20 g of natural hair is taken and 2.5

20 grams of composition 8 are applied to the hair and allowed to dry.

It is observed that the hair is maintained very well. Disentanglement is easy and the locks have a good feel after disentanglement.

the last time was sometimes in the task the last to the last the task task that

CLAIMS

- fibres such as the hair: characterized in that it

 comprises, in a cosmetically acceptable medium, at least one tacky polymer having a glass transition temperature (Tg) of less than 20°C and at least one fixing polymer having a glass transition temperature (Tg) greater than 15°C.
- 10 2. Composition according to Claim 1, characterized in that the tacky polymer has a peeling profile defined by at least one maximum peeling force F_{max} > 3 Newton, and preferably greater than 5 N.
- 3. Composition according to Claim 2, characterized in that when the glass transition temperature of the tacky polymer is less than -15°C, the peeling profile is defined, in addition, by an energy for separation $E_{s(M/V)}$ of the material brought into contact with a glass surface of less than 300 μJ .
- 20 4. Composition according to Claim 2, characterized in that Fmax is the maximum tensile force, measured with the aid of an extensometer, necessary to peel apart the respective 38 mm² surfaces of two rigid, inert and nonabsorbent supports (A) and (B) placed opposite each other; the said surfaces being previously

coated with the tacky polymer previously dissolved at 5% in an aqueous, aqueous-alcoholic or alcoholic solvent, at the rate of 1 mg/mm², dried for 24 hours at 22°C under a relative humidity of 50%, then subjected for 20 seconds to a compression of 3 Newton and finally subjected for 30 seconds to pulling at the rate of 20 mm/min.

- 5. Composition according to Claim 4, characterized in that the supports (A) and (B) consist of polyethylene, polypropylene, metal alloy or glass.
- Composition according to Claim 2, 6. 10 characterized in that $E_{s\,(M/V)}$ is the energy provided by the extensometer in order to carry out the separation of the respective 38 mm² surfaces of two rigid, inert and nonabsorbent supports (C) and (D) placed opposite each 15 other; one of the said supports consisting of cut glass and the other of the said supports being of an identical nature to the supports (A) and (B) as defined in Claim 4 or 5 and whose surface is previously coated with the tacky polymer previously dissolved at 5% in an aqueous, aqueousalcoholic or alcoholic solvent, at the rate of 1 mg/mm², dried for 24 hours at 22°C under a relative humidity of 50%, the two surfaces of the said supports (C) and (D) being subjected for 20 seconds to a compression of 3 Newton and finally subjected for 30 seconds to pulling at the rate of 20 mm/min.

7. Composition according to Claim 6, characterized in that $E_{s(M/V)}$ is the work calculated by means of the following formula:

Xs2

F(x)dx

Xs1+0.05

where F(x) is the force necessary to produce a movement (x);

 $x_{\rm s1}$ is the movement (expressed in millimetres) produced by the maximum tensile force;

 $x_{\rm s2}$ is the movement (expressed in millimetres) 10 produced by the tensile force which allows the complete separation of the two surfaces of the supports (C) and (D).

- 8. Composition according to any one of the preceding claims, characterized in that the tacky polymer is a branched sulphonic polyester or (meth)acrylic ester polymers.
 - 9. Composition according to any one of the preceding claims, characterized in that the relative concentration by weight of tacky polymer in the
- 20 composition is greater than 0.01%, preferably greater than 0.1%, and more preferably still greater than 0.5%.
 - 10. Composition according to any one of the preceding claims, characterized in that the fixing polymer has a glass transition temperature (Tg) greater than 25°C.

15

20

- 11. Composition according to any one of the preceding claims, characterized in that the relative concentration by weight of fixing polymer in the composition is greater than 0.01%, and preferably greater than 0.1%.
- 12. Composition according to Claim 8, characterized in that the branched sulphonic polyester is formed by polymerization of:
- (i) at least one difunctionaldicarboxylic acid not carrying a sulphonic function;
 - (ii) at least one difunctional monomer carrying at least one sulphonic function, the functional group(s) being chosen from the group comprising hydroxyl, carboxyl and amino groups;
 - (iii) at least one diol or a mixture
 of diol(s) and of diamine(s);
 - (iv) optionally one difunctional
 monomer chosen from the group comprising
 hydroxycarboxylic acids, aminocarboxylic acids and
 mixtures thereof;
 - (v) at least one multifunctional reagent carrying at least three functional groups chosen from the group comprising amino, alcohol and carboxylic acid groups.

- 13. Composition according to Claim 12, characterized in that the polymerization is carried out starting with:
- (iii) at least one diol or a mixture of diol(s) and of diamine(s);
 - (iv) 0 to 40 relative mol% of the difunctional monomer chosen from the group comprising the hydroxycarboxylic acids, the aminocarboxylic acids and mixtures thereof;
- (v) 0.1 to 40 relative mol% of the multifunctional reagent carrying at least three reactive functional groups.
- 14. Composition according to either of Claims 12 and 13, characterized in that the branched sulphonic polymer contains substantially equal proportions, as number of equivalents, of carboxylic acid functions, on the one hand, and of diol and/or diol and diamine functions, on the other hand.
- 15. Composition according to any one of Claims 12 to 14, characterized in that the diffunctional

dicarboxylic acid (i) is chosen from the group comprising aliphatic dicarboxylic acids, alicyclic dicarboxylic acids and aromatic dicarboxylic acids.

- 16. Composition according to Claim 15,

 5 characterized in that the difunctional dicarboxylic acid

 (i) is chosen from the group comprising 1,4
 cyclohexanedioic acid, succinic acid, glutaric acid,

 adipic acid, azelaic acid, sebacic acid, fumaric acid,

 maleic acid, 1,3-cyclohexanedioic acid, phthalic acid,

 terephthalic acid and isophthalic acid and a mixture

 thereof.
- 17. Composition according to any one of Claims 12 to 14, characterized in that the difunctional monomer (ii) is chosen from the group comprising
 15 dicarboxylic acids, dicarboxylic acid esters, glycols and hydroxy acids each containing at least one metal sulphonate group.
- 18. Composition according to any one of Claims 12 to 14, characterized in that the diol (iii) is 20 chosen from the group comprising alkanediols and polyalkylene diols.
 - 19. Composition according to Claim 18, characterized in that the diol (iii) is chosen from the group comprising ethylene glycol, propylene glycol,

diethylene glycol, triethylene glycol and polypropylene glycol.

- 20. Composition according to any one of Claims 12 to 14, characterized in that the diamine (iii) is chosen from the group comprising alkanediamines and polyalkylenediamines.
- Claims 12 to 14, characterized in that the multifunctional reagent (v) is chosen from the group comprising

 trimethylolethane, trimethylolpropane, glycerol, pentaerythritol, sorbitol, trimellitic anhydride, erythritol, threitol, dipentaerythritol, pyromellitic dianhydride and dimethylpropionic acid.
- 22. Composition according to Claim 8,

 15 characterized in that the (meth)acrylic ester polymer
 advantageously comprises:
 - (a) from 9 to 99% by weight of a (meth)acrylic ester monomer relative to the total weight of the polymer;

20

- (b) up to 90% of comonomer;
- (c) from 1 to 10% of a vinylidene monomer containing a carboxyl or hydroxyl group.
- 23. Composition according to any one of the preceding claims, characterized in that the fixing

polymer is chosen from the anionic, cationic, amphoteric and nonionic fixing polymers and mixtures thereof.

- 24. Composition according to Claim 23, characterized in that the fixing polymers are provided in solubilized form or in the form of a dispersion of solid particles of polymer.
- characterized in that the cationic fixing polymers are chosen from the polymers comprising primary, secondary, tertiary and/or quaternary amine groups which are part of the polymer chain or which are directly attached to it, and having a molecular weight of between 500 and about 5,000,000 and preferably between 1000 and 3,000,000.
- 26. Composition according to Claim 23, characterized in that the anionic fixing polymers are polymers comprising groups derived from a carboxylic, sulphonic or phosphoric acid and which have a weight-average molecular weight of between about 500 and 5,000,000.
- 27. Composition according to Claim 23, characterized in that the fixing polymers are amphoteric polymers chosen from the polymers comprising B and C units randomly distributed in the polymer chain, where B denotes a unit derived from a monomer comprising at least one

 25 basic function, in particular a basic nitrogen atom and C

denotes a unit derived from an acidic monomer comprising one or more carboxylic or sulphonic groups or alternatively B and C may denote groups derived from zwitterionic monomers of carboxybetaines or

- 5 sulphobetaines; B and C may also denote a cationic polymer chain comprising primary, secondary, tertiary or quaternary amine groups, in which at least one of the amine groups carries a carboxylic or sulphonic group attached via a hydrocarbon radical; or alternatively B and C are part of a chain of a polymer containing an ethylene-α,β-dicarboxylic unit of which one of the carboxylic groups has been caused to react with a polyamine comprising one or more primary or secondary amine groups.
- 28. Composition according to Claim 23,

 15 characterized in that the nonionic fixing polymers are polyurethanes.
- 29. Composition according to Claim 1, characterized in that the fixing polymer is a water-soluble polymer chosen from the group comprising silicone-containing acrylic polymers, polymers based on a vinylpyrrolidone and vinylcaprolactam monomer.
- 30. Composition according to Claim 1, characterized in that the fixing polymer is a dispersed polymer based on acrylic or methacrylic monomers and esters thereof and a polymer based on styrene monomers.

- 31. Composition according to any one of the preceding claims, characterized in that it is provided in the form of a vaporizable composition, a foam, a gel or a lotion.
- 5 32. Composition according to any one of the preceding claims, characterized in that the cosmetically acceptable vehicle consists of an appropriate solvent, to which additives such as gelling agents or foaming agents may be added.
- 10 33. Composition according to any one of the preceding claims, characterized in that it comprises a solvent chosen from water, an alcohol or an aqueous-alcoholic mixture.
- 34. Composition according to any one of
 the preceding claims, characterized in that it comprises,
 in addition, an appropriate quantity of propellant
 consisting of customary compressed or liquefied gases,
 preferably compressed air, carbon dioxide or nitrogen, or
 alternatively a gas which is soluble or otherwise in the
 composition, such as dimethyl ether, hydrocarbons which
 are fluorinated or otherwise and mixtures thereof.
- 35. Aerosol device consisting of a container containing an aerosol composition consisting, on the one hand, of a liquid phase (or juice) containing at least one composition in accordance with any one of Claims

1 to 30 in an appropriate solvent and a propellant as well as a means of distributing the said aerosol composition.

- 36. Method of treating keratinous fibres, in particular hair, characterized in that the composition as defined in Claims 1 to 30 is applied to the said fibres before or after shaping the hairstyle.
- 37. Use of a composition according to any one of Claims 1 to 30 in or for making a cosmetic hairstyling formulation.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control

number

Attorney Docket No.: 05725.0807

Declaration and Power of Attorney for Patent Application Déclaration et Pouvoir pour Demand de Brevet

French Language Declaration

nom est mentionné ci-dessous), ou l'un des premiers co-inventeurs originaux (si plusieurs noms sont mentionnés ci-dessous) de l'objet devendiqué, pour lequel une demande de brevet a été déposée concernant l'invention intitulée COSMETIC COMPOSITION COMPRISING AT LEAST A TACKY POLYMER AND AT LEAST A FIXING POLYMER et dont la description est fournie ci-joint à moins que la case suivante n'ait été cochée: a été déposée le		
Is believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if pural name is listed below) or an original, first and joint inventor (if pural name is listed below) or an original, first and joint inventor (if pural name is listed below) or an original, first and joint inventor (if pural name is listed below) or an original, first and joint inventor (if pural name is listed below) or an original, first and joint inventor (if pural name is listed below) or an original, first and joint inventor (if pural name is listed below) or an original, first and joint inventor (if pural name is listed below) or an original, first and joint inventor (if pural name is listed below) or an original, first and joint inventor (if pural name is listed below) or an original, first and sole inventor (if pural name is listed below) or an original, first and sole inventor (if pural name is listed below) or an original, first and sole inventor (if pural name is listed below) or an original, first and joint inventor (if pural name is listed below) or an original, first and joint inventor (if pural name is listed below) or an original, first and joint inventor (if pural name is listed below) or an original, first and joint inventor (if pural name is listed below) or an original, first and joint inventor (if pural name is listed below) of the subject matter which is pural name are listed below) of the subject matter which is claimed and for which a patent is sought on the inventior entitled COSMETIC COMPOSITION COMPRISING AT LEAST A TACKY POLYMER AND AT LEAST A FIXING POLYMER the specification of which is attached hereto unless the following box is checked: Was filed on June 8, 1999 as United States Application Number or PCT International Application Number or PCT International Application Number or PCT International Application Number or PCT International Application Number or PCT International Application Number or PCT International Application Number or PCT Intern		
nom est mentionné ci-dessous), ou l'un des premiers co-inventeurs originaux (si plusieurs noms sont mentionnés ci-dessous) de l'objet devendiqué, pour lequel une demande de brevet a été déposée concernant l'invention intitulée COSMETIC COMPOSITION COMPRISING AT LEAST A TACKY POLYMER AND AT LEAST A FIXING POLYMER et dont la description est fournie ci-joint à moins que la case suivante n'ait été cochée: a été déposée le	Mon domicile, mon adresse postale et ma nationalité sont ceux figurant ci-dessous à côté de mon nom.	
TACKY POLYMER AND AT LEAST A FIXING POLYMER the specification of which is attached hereto unless the following box is checked: a été déposée le the specification of which is attached hereto unless the following box is checked: was filed on June 8, 1999 as United States Application Number or PCT International Application Number or PCT International Application Number or PCT/FR99/01347 and was amended on (if applicable). Je déclare par le présent acte avoir passé en revue et comprise contenu de la description ci-dessus, revendications comprises, telles que modifées par toute modification dont il aura été fait référence ci-dessus. Je reconnais devoir divulguer toute information pertinente à la brevetabilité, comme défini dans le Titre 37, § 1.56 du Code	nom est mentionné ci-dessous), ou l'un des premiers co-inventeurs originaux (si plusieurs noms sont mentionnés ci-dessous) de l'objet evendiqué, pour lequel une demande de brevet a été déposée	I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled
suivante n'ait été cochée: a été déposée le		
Je déclare par le présent acte avoir passé en revue et compris le contenu de la description ci-dessus, revendications comprises, telles que modifies par toute modification dont il aura été fait référence ci-dessus. Je reconnais devoir divulguer toute information pertinente à la brevetabilité, comme défini dans le Titre 37, § 1.56 du Code I hereby state that I have reviewed and understand the content of the above identified specification, including the claims, a amended by any amendment referred to above	et dont la description est fournie ci-joint à moins que la case suivante n'ait été cochée:	
contenu de la description ci-dessus, revendications comprises, telles que modifées par toute modification dont il aura été fait référence ci-dessus. Je reconnais devoir divulguer toute information pertinente à la brevetabilité, comme défini dans le Titre 37, § 1.56 du Code of the above identified specification, including the claims, a amended by any amendment referred to above I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federa	a été déposée le sous le numéro de demande des Etats-Unis ou le numéro de demande international PCTet modifiée(les cas échéant).	Application Number or PCT International Application Number PCT/FR99/01347 and was
brevetabilité, comme défini dans le Titre 37, § 1.56 du Code material to patentability as defined in Title 37, Code of Federa	contenu de la description ci-dessus, revendications comprises, telles que modifées par toute modification dont il aura été fait	I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above
	brevetabilité, comme défini dans le Titre 37, § 1.56 du Code	I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control

Attorney Docket No.: 05725.0807

French Language Declaration

Je revendique par le présent acte avoir la priorité étrangère, en vertu du Titre 35, § 119(a)-(d) ou § 365(b) du Code des Etats-Unis, sur

I hereby claim foreign priority under Title 35, United States Code, § 119(a)-(d) or § 365(b) of any foreign application(s) for

vertu du Titre 35, § 3 internationale PCT dés: Unis et figurant ci-desso dessous toute demande ou toute demande inte	e de brevet ou certificat d'inventeur ou, en 65(a) du même Code, sur toute demande gnant au moins un pays autre que les Etats- us et, en cochant la case, j'ai aussi indiqué ci- etrangère de brevet, tout certificat d'inventeur ernationale PCT ayant une date de dépôt emande à propos de laquelle une priorité est	international Application which designated at least one count other than the United States, listed below, and have also identifiable below, by checking the box, any foreign application for patent inventor's certificate, or PCT International application having filing date before that of the application on which priority claimed.	try led or g a
Prior foreign applicatio Demande(s) de brevet a		Priority Not Claim <u>Droit de priorité non revendiq</u>	
98/07376 (Number) (Numéro)	France (Country) (Pays)	June 11, 1998 □ (Day/Month/Year Filed) (Jour/Mois/Anné de dépot) □	
(Number) (Numéro)	(Country) (Pays)	(Day/Month/Year Filed) (Jour/Mois/Anné de dépot)	
📆 119(e) du Code des	esent acte tout bénéfice, en vertu du Titre 35, E Etats-Unis, de toute demande de brevet Etats-Unis et figurant ci-dessous.	I hereby claim the benefit under Title 35, United States Coo § 119(e) of any United States provisional application(s) list below.	
#(Application No.) Model demande)	(Filing Date) (Date de dépot)		
(Application No.)	(Filing Date) (Date de dépot)		
§ 120 du Code des Etats aux Etats-Unis, ou en v toute demande internatio ci-dessous et, dans la me de cette demande de l antérieure américaine dispositions du premier Etats-Unis, je reconnais à à la brevetabilité, com fédéral des réglementa entre la date de dépôt de	esent acte tout bénéfice, en vertu du Titre 35, s-Unis, de toute demande de brevet effectuée ertu du Titre 35, § 365(c) du même Code, de male PCT désignant les Etats-Unis et figurant sure où l'objet de chacune des revendications prevet n'est pas divulgué dans la demande ou internationale PCT, en vertu des paragraphe du Titre 35, § 112 du Code des devoir divulguer toute information pertinente me défini dans le Titre 37, § 1.56 du Code ions, dont laquelle est devenue disponible et la demande antérieure, et la date de dépôt de minternationale PCT de la présente demande:	I hereby claim the benefit under Title 35, United States Coo § 120 of any United States application(s), or § 365(c) of any PO International Application designating the United States, list below and, insofar as the subject matter of each of the claims this application is not disclosed in the prior United States or PO International Application in the manner provided by the fiparagraph of Title 35, United States Code, § 112, I acknowled the duty to disclose any or all information which is material patentability as defined in Title 37, Code of Federal Regulation § 1.56 which became available between the filing date of the prapplication and the national or PCT International filing date this application.	cT ted of CT irst lge to ns,
(Application No.) (N ⁰ de demande)	(Filing Date) (Date de dépot)	(Status) (patented, pending, abandoned) (Status) (breveté, en cours d'examen, abandonné)	
(Application No.) (N ⁰ de demande)	(Filing Date) (Date de dépot)	(Status) (patented, pending, abandoned) (Status) (breveté, en cours d'examen, abandonné)	
connaissance, véridique renseignements ou de plus, que toutes ces dé toute fausse déclaratio	acte que toute déclaration ci-incluse est, à ma e et que toute déclaration formulée à partir de suppositions est tenue pour véridique; et de clarations ont été formulées en sachant que n volontaire ou son équivalent est passible e incarcération, ou des deux, en vertu de la	I hereby declare that all statements made herein of my or knowledge are true and that all statements made on informati and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements a the like so made are punishable by fine or imprisonment, or bo under Section 1001 of Title 18 of the United States Code and the	ion nts ind oth,

Section 1001 du Titre 18 du Code des Etats-Unis, et que de telles déclarations volontairement fausses risquent de compromettre la validité de la demande de brevet ou du brevet délivré à partir de celleci.

such willful false statements may jeopardize the validity of the application or any patent issued thereon.

PTO/SB/105 (8-96)

Approved for use through 9/30/98. OMB 0651-0032 Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Attorney Docket No.: 05725.0807

French Language Declaration

POUVOIRS: En tant que l'inventeur cité, je désigne par la présente l'(les) avocat(s) et/ou agent(s) suivant(s) pour qu'ils poursuive(nt) la procédure de cette demande de brevet et traite(nt) toute affaire s'y rapportant avec L'Office des brevets et des marques: (mentionner le nom et le numéro d'enregistrement).

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this patent application and transact all business in the Patent and Trademark Office connected therewith: (list name and registration number):

FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER, L.L.P., Reg. No. 22,540, Douglas B. Henderson, Reg. No. 20,291; Ford F. Farabow, Jr., Reg. No. 20,630; Arthur S. Garrett, Reg. No. 20,338; Donald R. Dunner, Reg. No. 19,073; Brian G. Brunsvold, Reg. No. 22,593; Tipton D. Jennings, IV, Reg. No. 20,645; Jerry D. Voight, Reg. No. 23,020; Laurence R. Hefter, Reg. No. 20,827; Kenneth E. Payne, Reg. No. 23,098; Herbert H. Mintz, Reg. No. 26,691; C. Larry O'Rourke, Reg. No. 26,014; Albert I. Santorelli, Reg. No. 22,610; Michael C. Elmer 26,014; Albert J. Santorelli, Reg. No. 22,610; Michael C. Elmer, 26.014; Albert J. Santorelli, Reg. No. 22,610; Michael C. Elmer, Reg. No. 25,857; Richard H. Smith, Reg. No. 20,609; Stephen L. Peterson, Reg. No. 26,325; John M. Romary, Reg. No. 26,331; Bruce C. Zotter, Reg. No. 27,680; Dennis P. O'Reilley, Reg. No. 27,932; Allen M. Sokal, Reg. No. 26,695; Robert D. Bajefsky, Reg. No. 25,387; Richard L. Stroup, Reg. No. 28,478; David W. Hill, Reg. No. 28,220; Thomas L. Irving, Reg. No. 28,619; Charles E. Lipsey, Reg. No. 28,165; Thomas W. Winland, Reg. No. 27,605; Basil J. Lewris, Reg. No. 28,818; Martin I. Fuchs, Reg. No. 28,508; E. Robert Yoches, Reg. No. 30,120; Barry W. Graham, Reg. No. 29,924; Susan Haberman Griffen, Reg. No. 30,907; Richard B. Racine, Reg. No. 30,415; Thomas H. Jenkins. 30.907; Richard B. Racine, Reg. No. 30,415; Thomas H. Jenkins, Reg. No. 30,857; Robert E. Converse, Jr., Reg. No. 27,432; Clair X. Mullen, Jr., Reg. No. 20,348; Christopher P. Foley, Reg. No. 31,354; John C. Paul, Reg. No. 30,413; Roger D. Taylor, Reg. No. 28,992; David M. Kelly, Reg. No. 30,953; Kenneth J. Meyers, Reg. No. 25,146; Carol P. Einaudi, Reg. No. 32,220; Walter Y. Boyd, Jr., Reg. No. 31,738; Steven M. Anzalone, Reg. No. 32,095; Jean B. Fordis, Reg. No. 32,984; Barbara C. McCurdy, Reg. No. 32,120; James K. Hammond, Reg. No. 31,964; Richard V. Burgujian, Reg. No. 31,744; J. Michael Jakes, Reg. No. 32,824; Dirk D. Thomas, Reg. No. 32,600; Thomas W. Banks, Reg. No. 32,719; Christopher P. Isaac, Reg. No. 32,616; Bryan C. Diner, Reg. No. 32,409; M. Paul Barker, Reg. No. 32,013; Andrew Chanho Sonu, Reg. No. 33,457; David S. Forman, Reg. No. 33,694; Vincent P. Kovalick, Reg. No. 32,867; James W. Edmondson, Reg. No. 33,871; Michael R. McGurk, 30,907; Richard B. Racine, Reg. No. 30,415; Thomas H. Jenkins, Forman, Reg. No. 33,694; Vincent P. Kovalick, Reg. No. 32,807; James W. Edmondson, Reg. No. 33,871; Michael R. McGurk, Reg. No. 32,045; Joann M. Neth, Reg. No. 36,363; Gerson S. Panitch, Reg. No. 33,751; Cheri M. Taylor, Reg. No. 33,216; Charles E. Van Horn, Reg. No. 40,266; Linda A. Wadler, Reg. No. 33,218; Jeffrey A. Berkowitz, Reg. No. 36,743; Michael R. Kelly, Reg. No. 33,921; and James B. Monroe, Reg. No. 33,971; and Thalia V. Warnement, Reg. No. 39,064; Michele C. Bosch, Reg. No. 40,524; Allen R. Jensen, Reg. No. 28,224; Mark D. Sweet Reg. No. 41,469; and Anthony M. Gutowski, Reg. No. 28, 2015. Sweet, Reg. No. 41,469; and Anthony M. Gutowski, Reg. No. <u>38,742</u>

71

Addresser toute correspondance à:

Addresser tout appel téléphonique à: (nom et numéro de téléphone)

Send all Correspondence to:

FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER, L.L.P. 1300 I Street, N.W., Washington, D.C. 20005, Telephone No. (202) 408-4000.

Direct all Telephone Calls to: (name and telephone number)

Thomas L. Irving, Reg. No. 28,619 Telephone Number (202) 408-4082

PTO/SB/105 (8-96)
Approved for use through 9/30/98. OMB 0651-0032
Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control iber. number.

Attorney Docket No.: 05725.0807

Nom complet de l'unique ou premier inventeur:	1-00	Full name of sole or first inventor <u>Isabelle ROLLAT-CORVOL</u>
Signature de l'inventeur	Date	Inventor's signature X Date X 12/01/01
Domicile		Residence
		48, rue de Bellevue, F-92100 <u>Boulogne-Billancourt</u> , France F F
Nationalité:		Citizenship French
Adresse postale:		Post Office Address Same as residence
Nom complet du second co-inventeur, le cas échéant:	2-00	Full name of second joint inventor, if any: Henri SAMAIN
Signature du second inventeur	Date	Second Inventor's signature Date
		Aleur Samain X 15/01/201
Domicile:		Residence
		14, rue du Coteau, F-91570 Bièvres, France FRX
Nationalité:		Citizenship French
Adresse postale:		Post Office Address Same as residence
Nom complet du third co-inventeur, le cas échéant:		Full name of third joint inventor, if any:
Signature d'inventeur	Date	Third Inventor's signature Date
Domicile		Residence
Nationalité:		Citizenship French
Adresse postale:		Post Office Address Same as residence